

REMARKS/ARGUMENTS

In the Office Action, the Examiner noted that claims 1-42 are pending in the application and that claims 1-42 are rejected. By this argumentative response and request for reconsideration, no claims have been cancelled, amended, or added. Thus, claims 1-42 are pending in the application. A copy of the claims as previously presented is included above for convenience.

Rejections Under 35 U.S.C., §103

Claims 1-13 and 18-23 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Kroszynski*, in view of *LaCourse* and further in view of *Moseley*. Claims 24-35 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Rappoport* in view of *LaCourse*, further in view of *Moseley*. Claims 14-17 and 36-42 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Etzion* in view of *Moseley*. Applicants traverse the Examiner's obviousness rejection for the reasons provided below.

In order to make a prima facie case of obviousness, the examiner must show one of the following:

1. a teaching, suggestion or motivation (TSM) in the prior art can render an invention obvious;
2. the mere selection of elements from various prior art references and combining them together with no new function or unpredictable result is an

obvious use of common sense by one skilled in the art, and therefore, not patentable; and

3. a combination that includes something new or produces a new function or unpredictable result is presumed patentable absent cogent reasoning that is unequivocally independent of hindsight.

Here, the Examiner has failed to present a prima facie case of obviousness because *Kroszynski* teaches away from the present invention. Secondly, the present invention provides a new function. More particularly, page 60 of *Kroszynski* state the three common representations of solids as CSG, B-Rep, and Polyhedral. *Kroszynski* focuses on how the models are represented by CAD systems after they are created, whereas the claimed invention focuses on how the models are created by the CAD system. Thus, the concept of feature-based creation of the CAD models is not addressed in *Kroszynski*. In contrast, the storage of models after they are created is what CAD-I is focused on. However, the present invention does not care, for example, if the representation is CSG or BRep or Tetrahedral.

On pages 61 and 62, *Kroszynski* mentions the types of references used in CAD-I as being "is-known-in" and "is-part-of". Again these are relationships that are valid in the data storage of the CAD models and the resulting representations. Our method of iteratively trying alternative methods is focused on "is-used-to-create" or "is-based-on" concepts – again underscoring the fundamental difference between methods for creating CAD models versus representations.

On Page 62, column 2, paragraph 3, *Kroszynski* mentions that the data creation in the target CAD system can be realized "... only if the following is true:

- The receiving CAD system supports similar features
- The postprocessor program performs a thorough translation,
- A set of directives specifying the allowed operations on each entity accompanies the neutral file....".

This paragraph from *Kroszynski* teaches away from the claims in the present patent application. The presented patent claims are based on the assumption that the first item on *Kroszynski's* list is false. In fact, the CAD systems have features that are not supported by other CAD systems. Technology from the present invention looks at the design intent of the feature in the source CAD model and tries to achieve the same design intent in the target using the features provided in the target model. In fact, the present invention is needed only because the first assumption in *Kroszynski's* list is not true. Accordingly, the Applicants in this case found it necessary to try to use the available features on the target and iteratively try alternatives until they were able to map the design intent and/or the geometry, and use the interrupt interface only if they were unable to map and create automatically the desired result.

LaCourse also teaches away from the claims in the present invention. In the *LaCourse* reference at Figure 2, the caption clearly states that the suggested flow is for the sending CAD system. Applicants' claimed technology is directed entirely to the receiving CAD system. Once the sending CAD system has sent the data, there is no flow of errors

and corrections back to the sending system to change what the user extracts. The user knows what the intent was in the sending CAD system, and the claimed technology focuses on creating the same intent in the receiving CAD system using the creation capabilities available in the receiving system.

In the *LaCourse* reference, page 50, paragraph 2, second to last sentence, the technology described lets you visualize what was fixed in the model, along with any geometry still in need of repair. This implies two things: a) the user needs to see what was fixed in the model, and b) that showing the user what still needs to be fixed will allow the user to fix the model or ignore it. This again teaches AWAY from Applicants experience and the claimed technology. Firstly, the claimed technology does not "fix" anything. However, the claimed technology does use alternative different methods to "create" the correct solution. So when the feature or geometry is created to satisfaction, nothing has been "fixed" and the user does not need to see it in the end resulting model. The second item above implies that telling the user what still needs to be fixed will provide the user with guidance on fixing the model. This teaches away from Applicants' method that if something is not right, it needs to be created correctly during the process of creation and cannot be created or corrected at the end. Originally, Applicants first started with the *LaCourse* method and wasted significant time using that method because it taught away from the reality of the fact that CAD models are very difficult and very often impossible to correct at the end. If one feature fails creation, several others will fail along the way. It is like saying that there was not enough sugar in the cake while it was baking, so you can add

sugar in the end and make it taste the same. If the sugar is not added at the right time in the right amount, it not only affects the taste but also how the cake rises.

Rappoport has been misapplied to claims 24-35. In order for the process adopted by *Rappoport* and *LaCourse* to be analogous to the presented claims and the relevant steps provide therein, *Rappoport* and/or *LaCourse* would have to do a complete and accurate multi-staged translation whereby, whenever a discrepancy and/or problem is encountered, the translation pauses. The process would then need to allow and/or help the user fix the said discrepancy and/or problem to retain the feature (which caused the discrepancy) from the source CAD system in the target CAD system. Finally the process should go ahead with the translation from the point where it had paused. This process should then be continually repeated till the translation ends after fully and accurately building the target CAD model. The Applicants respectfully submit that the above process as described is not taught or suggested by *Rappoport* or *LaCourse* either jointly or individually and nor do they appear to teach the same either jointly or individually.

Rappoport (U.S. Patent 6,828,963) does not appear to teach the detection of discrepancies between the selected feature from the target geometric data and a corresponding feature from the source geometric data, or a problem in generating the desired translated target geometric model, and iterating the generation of the desired translated target geometric model for each of the plurality of features using a second set of construction rules. Instead, whenever a discrepancy is encountered, the process of translation continues without allowing or helping the user to retain and/or incorporate the

relevant feature from the source CAD system into the target CAD system, the very feature, which lead to the identification of the said discrepancy.

Rappoport also does not appear to allow/help the user to fix any/all discrepancy(ies) encountered by detecting either a discrepancy or a problem in generating the desired translated target geometric model and iterating generation of the desired translated target geometric model for each of the plurality of features using a second set of construction rules. The whole process that *Rappoport* appears to teach is a single-stage translation without leaving any room for a second set of construction rules that provides confidence there will be a full and accurate translation.

Etzion has been misapplied to claims 14-17 and 36-42. *Etzion* is providing a method for identifying the edges that the operations will be performed on. That is just stage 1 of the entire process. Once you have the edge, you have to perform the operation. When the operation fails, you have to try alternative methods and when they fail, you have the user interface for the interrupt process. In the combination of *Mosely*, *LaCourse*, and *Etzion*, what is missing is the fact that Applicants are trying to achieve the same design intent in the target. Applicants are not just trying to find a different way to get the same feature in the target but are trying to create a combination of features to achieve the same result. *Etzion* is a method for just identifying geometry on which a feature is to be built. However, in our system and process, the geometry that was built on the edge in the source may be built on a different parent geometry in the target. For example, if an edge chamfer fails (even when the edge is identified using *Etzion's* methods), *LaCourse* uses the client

server and identifies that there is a problem, and *Moseley* presents a user interface. What is different in Applicants' case is that Applicants then look beyond the edge and look at the two surfaces that were affected by the chamfer and see if the CAD system supports a surface to surface chamfer that will result in the same end result the user was looking for in terms of geometry and design intent. This feature is provided in claim 24 by a different parent geometry, namely, "...using a second set of construction rule to generate the selected feature ...".

Nowhere is it taught or suggested by the cited prior art references, as recited in claim 1, to provide "...an interrupt interface provided by one of the at least one client and the server and operative to notify a user of the server's inability to automatically generate an accurate representation of a feature of the source geometric model in the target geometric model."

Likewise, nowhere is it taught or suggested by the cited prior art references, as recited in claim 14, to provide "...a server ...configured to automatically correct discrepancies of a feature, by selectively substituting from one of: 1) a group of all possible combinations of features, dimensions, sketches, parameters and definitions supported by the target CAD system, and 2) a group of all variations of features, dimensions, sketches, parameters and definitions supported by the target CAD system in an effort to resolve the discrepancy generated in the second format prior to generating another feature".

Furthermore, nowhere it is taught or suggested by the cited prior art references, as recited in claim 18, to provide "...a server ...having ...an operation manager configured to

compare source geometric data related to each of a plurality of features in a source geometric model with target geometric data for corresponding features in a translated target geometric model ...wherein the server is further configured to correct feature discrepancies after generating the feature and prior to generating another feature.”.

Even furthermore, nowhere it is taught or suggested by the cited prior art references, as recited in claim 24, to provide “...c) using a target computer aided design (CAD) system, generating a desired translated target geometric model for each of the plurality of features having respective target geometric data, wherein a selected feature is generated using a first set of construction rules; d) detecting at least a) a discrepancy between the selected feature from the target geometric data and a corresponding feature from the source geometric data and b) a problem in generating the desired translated target geometric model; and e) iterating step c), using a second set of construction rules to generate the selected feature in the desired translated target geometric model, in the event of a discrepancy between the selected feature from the target geometric data and a corresponding feature from the source geometric data in order to rectify the discrepancy”.

Finally, nowhere it is taught or suggested by the cited prior art references, as recited in claim 36, to provide “...(a) processor further configured to rectify discrepancies in a feature after generating the feature and prior to generating another feature among the plurality of features by selectively substituting from one of: 1) a group of all possible combinations of features, dimensions, sketches, parameters and definitions supported by the target CAD system, and 2) a group of all variations of features, dimensions, sketches,

parameters and definitions supported by the target CAD system in an effort to resolve the discrepancy".

According to comments for MPEP 706.02(j), "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." See *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The Examiner has failed to do that here with any specificity relating to the recited claim limitations.

Accordingly, the Examiner has failed to present a prima facie case of obvious with respect to claims 1-42.

Withdrawal of this rejection is respectfully requested.

CONCLUSION

For all the reasons advanced above, Applicant respectfully submits that the application is in condition for allowance, and action to that end is respectfully requested. If the Examiner's next anticipated action is to be anything other than a Notice of Allowance,

Application Serial No. 10/781,497
Amendment dated 3/11/2008
in Response to Office Action dated 09/11/2007

the undersigned respectfully requests a telephone interview before issuance of any such subsequent action.

Respectfully submitted,

Dated: 3/11/08

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